

## EXHIBIT B18

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**SOFTWARE CONSIDERATIONS IN AIRBORNE  
SYSTEMS AND EQUIPMENT CERTIFICATION**

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**SOFTWARE DEVELOPMENT PROCESS**

This section discusses the objectives and activities of the software development processes. The software development processes are applied as defined by the software planning process (section 4) and the Software Development Plan (subsection 11.2). Table A-2 of Annex A is a summary of the objectives and outputs of the software development processes by software level. The software development processes are:

- Software requirements process.
- Software design process.
- Software design process.
- Integration process.

Software development processes produce one or more levels of software requirements. High-level requirements are produced directly through analysis of system requirements and system architecture. Usually, these high-level requirements are further developed during the software design process, thus producing one or more successive, lower levels of requirements. However, if Source Code is generated directly from high-level requirements, then the high-level requirements are also considered low-level requirements, and the guidelines for low-level requirements also apply.

The development of a software architecture involves decisions made about the structure of the software. During the software design process, the software architecture is defined and low-level requirements are developed. Low-level requirements are software requirements from which Source Code can be directly implemented without further information.

Each software development process may produce derived requirements. Derived requirements are requirements that are not directly traceable to higher level requirements. An example of such a derived requirement is the need for interrupt handling software to be developed for the chosen target computer. High-level requirements may include derived requirements, and low-level requirements may include derived requirements. The effects of derived requirements on safety related requirements are determined by the system safety assessment process.

5.1

**Software Requirements Process**

The software requirements process uses the outputs of the system life cycle process to develop the software high-level requirements. These high-level requirements include functional, performance, interface and safety-related requirements.

5.1.1

**Software Requirements Process Objectives**

The objectives of the software requirements process are:

- a. High-level requirements are developed.
- b. Derived high-level requirements are indicated to the system safety assessment process.

5.1.2

**Software Requirements Process Activities**

Inputs to the software requirements process include the system requirements, the hardware interface and system architecture (if not included in the requirements) from the system life cycle process, and the Software Development Plan and the Software Requirements Standards from the software planning process. When the planned transition criteria have been satisfied, these inputs are used to develop the software high-level requirements.

The primary output of this process is the Software Requirements Data (subsection 11.9).